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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,522	08/22/2003	Foster D. Hinshaw	3336.1017-001	8912
21005 7590 01/24/2007 HAMILTON, BROOK, SMITH & REYNOLDS, P.C. 530 VIRGINIA ROAD P.O. BOX 9133 CONCORD, MA 01742-9133			EXAMINER LOVEL, KIMBERLY M	
			ART UNIT 2167	PAPER NUMBER

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/646,522	Applicant(s) HINSHAW ET AL.	
	Examiner Kimberly Lovel	Art Unit 2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-24 and 30-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 30-49 is/are rejected.
- 7) ☒ Claim(s) 6-24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 October 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>11/2/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This communication is responsive to the Amendment filed 12 November 2006.
2. Claims 6-24 and 30-49 are pending in this application. Claims 1, 11, 17, 30, 35, 41 and 49 are independent. In the Amendment filed 12 November 2006, claims 1-5 and 25-29 have been cancelled and claims 6-11, 13-17, 20, 22, 24, 30-35, 37-41, 44, 46, 48 and 49 have been amended. This action is made Non-Final.
3. The rejections of claims 1-49 as being unpatentable over US Patent No 6,237,001 to Bamford et al in view of the article, "Efficient and Flexible Methods of Transient Versioning of Records to Avoid Locking by Read-Only Transactions" by Mohan et al have been withdrawn as necessitated by applicants' amendments and arguments.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted on 2 November 2006 was filed after the mailing date of the Office Action on 7 April 2006. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

5. The objections to Figs 1 and 2 have been withdrawn as necessitated by amendment.

Claim Objections

6. **Claims 6, 8, 9, 11, 13, 15, 17, 19, 21, 23, 30-35, 37-45, 47 and 49** are objected to because of the following informalities:

For clarity purpose, it is suggested that the "wherein" limitations of **claim 6**, lines 10 and 15 be indented once again.

Claim 6 recites the limitations "the start time" in line 11; "the invisibility list" in line 30; and "the specified "as-of" time" lines 26, 28 and 32. There is insufficient antecedent basis for these limitations in the claim.

Claim 6, line 17 has a period at the end of the limitation. It is suggested that the period be changed to a semi-colon.

Claim 6 uses the term "'as-of" a determined time" in lines 17, 26, 28 and 32. It is unclear what is meant by "as-of." It is suggested that the definition for "as-of" discussed in the specification be utilized in the claim in order to clearly state what is being claimed.

Claim 6 recites the limitation "a transaction identifier equal to the transaction identifier for the earliest transaction, less one" in lines 28-29. "Less one" renders this claim unclear.

Claim 8 recites the limitation "an invisibility list of the new transaction" in line 2. There is antecedent basis for this limitation in claim 6, therefore, it is suggested that "an" be changed to "the."

Claim 9 recites the limitation "the transaction" in line 3. Claim 6 mentions different types of transactions, therefore, it is unclear which transaction the limitation is referring to.

Claim 11 recites the limitation "could have been" in line 15. It is unclear what is meant by this limitation and furthermore, what happens if there are no records that "could have been created, updated or deleted."

Claim 11 recites the limitation "the version" in line 22. There is insufficient antecedent basis for this limitation in the claim.

Claim 11 recites the limitation "a list of deleted records" in line 2. There is antecedent basis for this limitation in line 25, therefore, it is suggested that "an" be changed to "the."

Claim 13 recites the limitations "the time the database had previously stopped operating" in line 4; "the changes" in line 5; and "the invisibility lists" in line 7. There is insufficient antecedent basis for these limitations in the claim.

Claim 15 recites the limitation "adding a deletion descriptor to a list of deleted records, if the deleter transaction identifier field is not present, the deletion descriptor identifying the transaction and the existing record" in lines 11-13. It is suggested that the limitation be rewritten for clarification purposes.

Claim 17 recites the limitation "the isolation level of the requesting transaction, **the transaction identifier**, the invisibility list of the requesting transaction and a creator transaction identifier" in lines 11-12. It is suggested that the limitation states "the isolation level of the requesting transaction, the transaction identifier **of the requesting transaction**, the invisibility list of the requesting transaction and a creator transaction identifier" in order to maintain consistency throughout the limitation and also for

clarification purposes since there are different types of transaction identifiers mentioned in the claim.

Claim 17 recites the limitation "the deleter transaction identifier" in line 20. There is insufficient antecedent basis for this limitation in the claim.

Claim 19 recites the limitation "the invisibility list of a specified transaction" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim.

Claim 19 recites the limitation "**which may be** the requesting transaction or some other transaction" in lines 3-4. The phrase "which may be" renders the limitation unclear.

It is suggested that the limitation starting with "ensuring" on line 4 of **claim 20** be moved to the next line of the claim.

Claim 21 recites the limitations "the course of a transaction" in line 3 and "the same record" in line 4. There is insufficient antecedent basis for these limitations in the claim.

Claim 23 recites the limitation "the group" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claims 30-35, 37-45, 47 and 49 have similar errors.

It is suggested that all claims be reviewed for lack of antecedent basis and other errors.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. The rejections of claims 1-29 under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter are withdrawn as necessitated by amendment.

8. **Claims 30-49** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 30, 35, 41 and 49 are directed towards a multi-version database management system. However, the system can comprise entirely of software *per se* according to one of ordinary skill in the art.

According to MPEP 2106:

The claims lack the necessary physical articles or objects to constitute a machine or a manufacture within the meaning of 35 USC 101. They are clearly not a series of steps or acts to be a process nor are they a combination of chemical compounds to be a composition of matter. As such, they fail to fall within a statutory category. They are, at best, functional descriptive material *per se*.

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." Both types of "descriptive material" are nonstatutory when claimed as descriptive material *per se*, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994)

Merely claiming nonfunctional descriptive material, i.e., abstract ideas, stored on a computer-readable medium, in a computer, or on an electromagnetic carrier signal, does not make it statutory. See *Diehr*, 450 U.S. at 185-86, 209 USPQ at 8 (noting that the claims for an algorithm in *Benson* were unpatentable as abstract ideas because "[t]he sole practical application of the algorithm was in connection with the programming of a general purpose computer.").

Since **claims 31-34, 39, 40 and 43-48** are dependent on claim 30; **claims 36-38** are dependent on claim 35; and **claim 42** is dependent on claim 41, the claims are rejected on the same grounds as claims 30, 35 and 41.

To allow for compact prosecution, the examiner will apply prior art to these claims as best understood, with the assumption that applicant will amend to overcome the stated 101 rejections.

Allowable Subject Matter

9. The following is a statement of reasons for the indication of allowable subject matter:

Claims 6-24 are objected to because of formalities and claims 30-49 are rejected as previously described.

The claims would be allowable if rewritten to overcome the objections and/or rejections.

In the Examiner's Office Action for Non-Final Rejection of dated 7 April 2006, 35 USC § 103 rejections of the claims were based on US Patent No 6,237,001 to Bamford et al and the article "Efficient and Flexible Methods of Transient Versioning of Records to Avoid Locking by Read-Only Transactions" by Mohan et al. In the Remarks filed on 12 November 2006, Applicant specifically emphasized that the ANSI SQL92 isolation level Repeatable Read, as supported by the present invention, allows phantom reads, but prevents non-repeatable reads. In contrast, Snapshot Isolation, as applied in

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Bamford et al, allows non-repeatable reads but prevents phantom reads. Also, each transaction has an associated identifier, invisibility list and isolation level, each of which are explicitly defined within the claim language.

The Amendment filed 12 October 2006, further narrowed and clarified the subject matter in each of the independent claims. The combination of the limitations as a whole within the amended independent claims overcome the prior art and therefore are considered allowable subject matter.

An updated search of prior arts on EAST database and on domains (NPL-ACM, Google, NPL-IEEE) have been conducted. The prior arts searched and investigated in the database and domains does not fairly teach or suggest the teaching of the newly amended claimed subject matter as described above and reflected by the combined elements in the independent claims 6, 11, 17, 30, 35, 41 and 49.

The dependent claims 7-10, 12-16, 18-24, 31-34, 36-40 and 42-48 depending directly or indirectly upon claims 6, 11, 17, 30, 35, 41 and 49, respectively, are also distinct from the prior art for the same reasons.

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10. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly Lovel whose telephone number is (571) 272-2750. The examiner can normally be reached on 8:00 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cottingham can be reached on (571) 272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kimberly Lovel
Examiner
Art Unit 2167

19 January 2007
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